

TC11 MAY 1976

DESIGN CRITERIA FOR SHIPBOARD MEDICAL SPACES

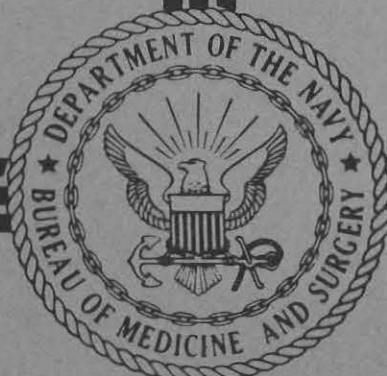
**MEDICAL TREATMENT
UNIT**

**EYE EXAMINATION/
RANGE ROOM**

**OFFICE AND CONSULTATION
ROOM**

**TREATMENT WAITING ROOM
AND MEDICAL EMERGENCY
EXPANSION SPACE**

APRIL 1976



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Design Criteria for Shipboard Medical Spaces, April 1976, present in drawings and text the functional design requirements of the Bureau of Medicine and Surgery for the following types of shipboard medical spaces: <ol style="list-style-type: none"> 1. Medical Treatment Unit 2. Eye Examination/Range Room 3. Medical Office and Consultation Room 4. Treatment Waiting Room and Medical Emergency Expansion Space 		

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This technical report takes into account the existing equipment limitations and shipboard constraints. Using the present state-of-the-art as a baseline, an outline of an R&D program will be developed. Accomplishment of such a program is expected to reduce or to eliminate, in future ships, the effects of the existing equipment limitations and shipboard constraints. This R&D program will be developed as the design criteria are worked out and will be incorporated in the final report.

Additionally, these design criteria are intended to assist the Naval Sea Systems Command in designing and building shipboard medical spaces which will most efficiently and economically accomplish their purpose. They embody arrangements of modern types of equipment, which take advantage of recent advances in techniques and equipment design and, at the same time, require a minimum of space. It is expected that they will provide a rational basis for the usual structural and arrangement drawings. In so doing, they will effect a much-needed standardization.

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DESIGN CRITERIA
FOR
SHIPBOARD MEDICAL SPACES

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April 1976

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PROJECT DESCRIPTION

Design criteria for 12 types of shipboard medical spaces are being developed under Contract No. N00014-74-C-0404, Modification P00002. The work is being done in three increments as indicated below:

First Increment

- Medical Treatment Unit
- Eye Examination/Range Room
- Medical Office and Consultation Room
- Treatment Waiting Room and Medical Emergency Expansion Space

Second Increment

- Apparatus Room
- Scrub Room
- Audiometric Booth
- Linen Issue Room

Third Increment

- Quiet Room Bathroom
- Ward Bathroom
- Ward Pantry
- Specimen Collection Area

The design criteria are intended to provide the optimal functional configuration for each type of space, giving due weight to the current equipment limitations and the existing shipboard constraints. Using these design criteria as a baseline, an outline for a related corrective R&D program will be developed. Future accomplishment of this program will reduce or eliminate the effects of the existing shipboard constraints and equipment shortcomings detected during the development of the design criteria.

The framework for the R&D program will be developed as work progresses and will be presented as an attachment to the final report.

The design criteria for the first increment are presented in the following pages.

SECTION 1

DESIGN CRITERIA

FOR

MEDICAL TREATMENT UNITS

April 1976

DESIGN CRITERIA FOR MEDICAL TREATMENT UNITS

Purpose

These design criteria are intended by the Bureau of Medicine and Surgery to assist the Naval Sea Systems Command in designing and building shipboard Medical Treatment Units which will most efficiently and economically accomplish their purpose. They embody an arrangement of modern types of equipment which will take advantage of recent advances in medical techniques and equipment design. At the same time, they require a minimum of space. It is expected that they will provide a rational basis for the usual structural and arrangement drawings. There is no intention to abridge good design and shipbuilding practice.

Adherence to the arrangement shown is highly important. Dimensions shown (except for the overall dimensions) are intended to be typical and are not meant to be restrictive with respect to the suppliers of the equipment. Minor adjustments may be necessary to accommodate the equipment provided. Overall dimensions show the minimum acceptable usable area.

The equipment and service connections shown are confined to the major fixed and portable items necessary to accomplish the medical mission of the units. There is no intent to include the nonmedical equipment routinely provided in such spaces, e.g., ventilation ducts, space lighting, etc., which must not infringe on the working area.

Specific Criteria

1. The intent is to design a medical treatment facility that is suitable for installation in destroyer types and smaller ships. Because ships of this general size present special problems, the facility is designed to be a virtually self-sufficient entity. It provides a Medical Treatment Room, an

adjacent 2-berth Ward, and a Bath. The unit is multifunctional, in that the medical treatment room could serve as a minor operating room in an emergency, and the ward could serve as an isolation ward or a quiet room. All spaces are contiguous, so as to provide the optimal utilization of manpower. Thus, the unit can meet all the major medical requirements of a small ship.

2. In order to provide maximum versatility, both an examining and treatment chair and a minor operating table are provided. These pieces of equipment are not redundant, as each has its own special features. In addition, the installation of both will increase the efficiency of the use of the medical treatment room; for instance, a patient who requires observation after treatment in the chair can be accommodated on the table for the period of observation and vice versa. Thus, the chair or table is immediately free for another patient.

3. For maximum ease of access, 36" doors are provided for the medical treatment room and the ward to permit easy passage by a litter. The access to the treatment room will be by a Dutch door; the intention is to permit communication but to discourage entry.

4. A safe locker is provided for a working supply of narcotics and controlled drugs. It is expected that the reserve supply of narcotics and controlled drugs will be maintained in a locker in the cabin of the Executive Officer or in a protected storeroom.

5. The laboratory locker is to be equipped with a removable lead trough approximately 24"x 24" x 12" deep. This trough should be in a deep drawer, which has a lock.

6. No poison antidote locker is provided in the medical treatment room, in view of the fact that the space will not normally be manned on a 24-hour basis. The antidote locker is to be installed in a prominent, unlocked, easily accessible location near the medical treatment unit.

7. The provisions of the Air Conditioning, Ventilation, and Heating Design Criteria Manual for Surface Ships of the United States Navy, 1 July 1969, N.S. 0938-081-0010, are applicable.

8. A minor surgical light is indicated in the design. While it is less sophisticated than other types of lights now available, it is deemed to be more suitable for use afloat. Surgical lights mounted on arms, and especially track-mounted lights, have shown that they rattle, drift, and vibrate in varying degree as a result of the vibration and movement of the ship. Until a specialized surgical light for shipboard use can be developed, the minor surgical light appears to be the best compromise. A bracket mounting should be used to obtain the requisite freedom of direction while avoiding drift and magnification of vibration.

9. The refrigerator is to be explosionproof and is to meet the requirements of MIL-R-19003B and other applicable specifications. NAVSHIPS NOTICE 9370 Ser 478 dated 14 July 1969 states the requirements for explosionproof refrigerators and NAVSHIPS NOTICE 9340 Ser 1018 dated 25 August 1969 lists the requirements for a temperature alarm system for biological refrigerators. This explosionproof requirement stems from the possibility of the presence of flammable solvents.

10. The service (deep) sink installed in the ward is important, as it provides a convenient facility for washing dirty swabs and dumping dirty water. In the absence of such a sink, there is a strong temptation to use the surgical sink or any other convenient sink, with the attendant danger of cross-contamination.

11. Cabinets and other furniture are to be made of steel, excepting trim, which may be made of an acceptable fire-retardant material.

12. All drawers and cabinet doors are to be equipped with readily operated, positive latches to prevent opening as a result of ship motion, and the shelves

are to be provided with lips to prevent material from sliding off because of the ship's motion. The shelf spacing should be adjustable.

13. Mobile equipment is to have retractable casters or other means to prevent movement as a result of ship motion. In addition, simple securing devices must be provided for the stowed positions, and an array of securing devices must be provided on the deck around the operating table and chair to keep such equipment in the required positions during usage. The securing devices should be flush with the deck.

14. The height of the overhead shall be at least 8 feet, and the overhead is to be fully sheathed. To avoid interference with personnel, the lowest fixed portion of the surgical light and the other appendages from the overhead must be at least 6'-6" above the deck.

15. Emergency lights are to be provided to equal or exceed the arrangement indicated. The dry cell battle lantern is not adequate for this usage; some type of battery-powered, sealed beam light is needed.

16. The noise level is to be Category C of the General Specifications for Ships of the United States Navy.

17. The lighting is to be daylight-corrected and the general illumination level is to be 100 foot candles.

18. Vibration levels at all ship speeds should be low enough so as not to interfere with any major function.

19. Medical treatment rooms, in common with other medical spaces, should provide as stable a platform as practicable through ship stabilization or other means.

20. The minor operating table and related life-saving equipment are to conform to Grade A shock standards; other equipment will conform to Grade B standards.

Drawing Notes

1. The numbers in circles (③) identify pieces of equipment; the letters in squares ([A]) identify services which are required, approximately in the locations shown. The exact locations will be in accordance with the recommendations of the equipment suppliers.
2. Details such as wiring, tubing, and piping have been omitted in the interest of simplicity.
3. Inches may be converted to metric equivalents by the use of the following table.

INCH-MILLIMETRE EQUIVALENTS

in.	0	1	2	3	4	5	6	7	8	9
	mm									
0		25.4	50.8	76.2	101.6	127.0	152.4	177.8	203.2	228.6
10	254.0	279.4	304.8	330.2	355.6	381.0	406.4	431.8	457.2	482.6
20	508.0	533.4	558.8	584.2	609.6	635.0	660.4	685.8	711.2	736.6
30	762.0	787.4	812.8	838.2	863.6	889.0	914.4	939.8	965.2	990.6
40	1016.0	1041.4	1066.8	1092.2	1117.6	1143.0	1168.4	1193.8	1219.2	1244.6
50	1270.0	1295.4	1320.8	1346.2	1371.6	1397.0	1422.4	1447.8	1473.2	1498.6
60	1524.0	1549.4	1574.8	1600.2	1625.6	1651.0	1676.4	1701.8	1727.2	1752.6
70	1778.0	1803.4	1828.8	1854.2	1879.6	1905.0	1930.4	1955.8	1981.2	2006.6
80	2032.0	2057.4	2082.8	2108.2	2133.6	2159.0	2184.4	2209.8	2235.2	2260.6
90	2286.0	2311.4	2336.8	2362.2	2387.6	2413.0	2438.4	2463.8	2489.2	2514.6
100	2540.0	...	...	...	...	...	...	...	...	...

Note: Values in this table are based upon the relation 1 in. = 25.4 mm. By manipulating the decimal point, any decimal value or multiple of an inch may be converted to its equivalent in millimetres, centimetres, or metres.

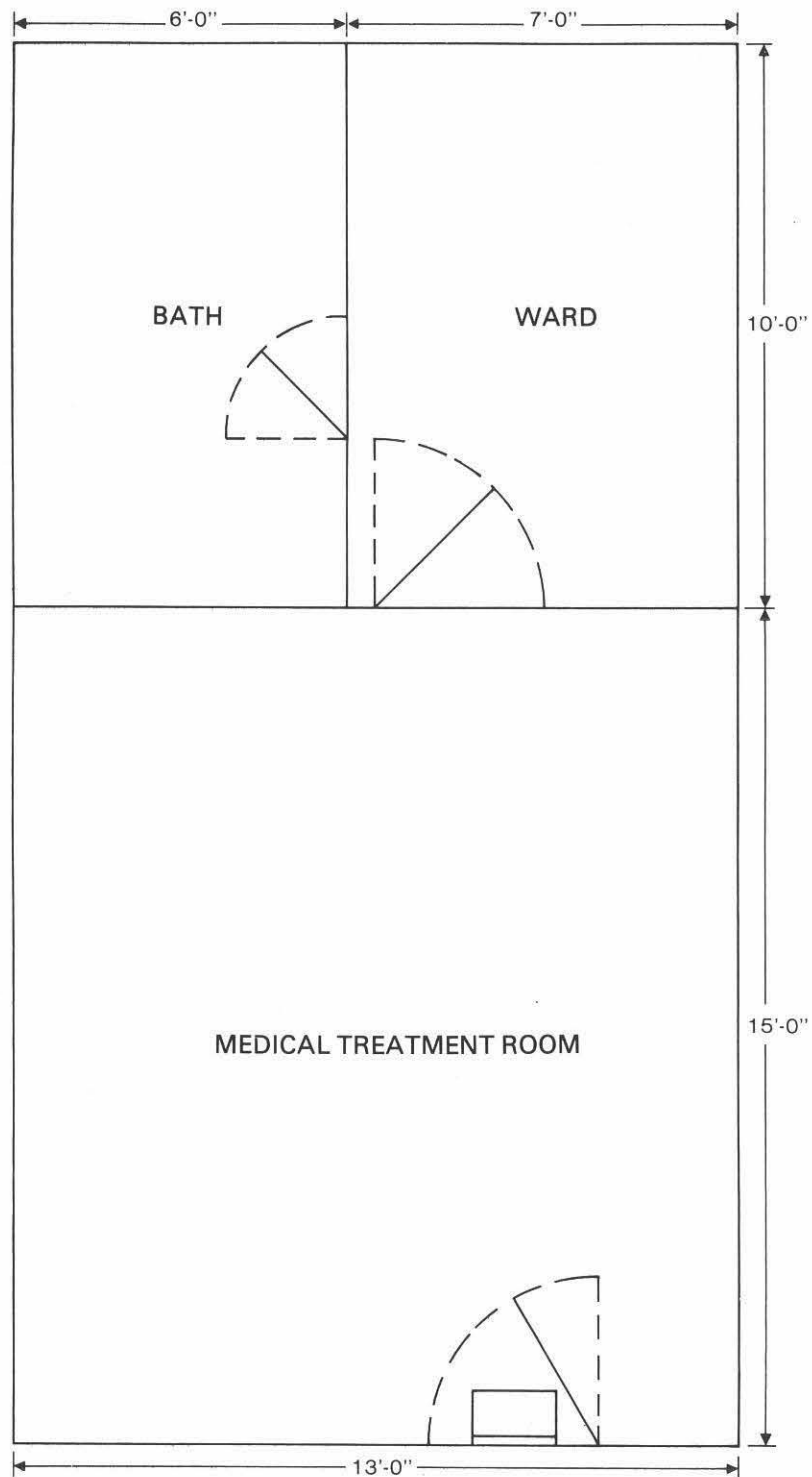
MEDICAL TREATMENT UNIT MAJOR EQUIPMENT AND SERVICES

ITEM NO.	QTY.	EQUIPMENT	SPECIFICATION	SERVICES REQUIRED							
				A	B	C	D	E	F	G	H
1	1	BOOKRACK	NAVSEA								
2	2	BUNK LIGHT	NAVSEA	X							
3	5	CABINET, BULKHEAD-MOUNTED	BUMED								
4	1	CENTRIFUGE (PORTABLE)	BUMED	X							
5	1	CHAIR, EXAMINING AND TREATMENT	BUMED	X							
6	1	CHAIR, TYPIST'S (PORTABLE)	NAVSEA								
7	1	CLOCK, 12", BULKHEAD-MOUNTED	NAVSEA								
8	11	CONVENIENCE ELECTRICAL OUTLET (DOUBLE)	NAVSEA	X							
9	1	COUNTER, WITH UNDERCOUNTER STOWAGE	BUMED								
10	1	DESK, TYPEWRITER, SINGLE-PEDESTAL	NAVSEA								
11	1	DRUG LOCKER, WITH KEY LOCK	BUMED								
12	1	DUTCH DOOR, WITH DROP LEAF	NAVSEA								
13	1	FILE CABINET, 3-DRAWER	NAVSEA								
14	1	GRAB RAIL	NAVSEA								
15	1	HAMPER, DIRTY LINEN (PORTABLE)	NAVSEA								
16	2	HOSPITAL BERTH, ADJUSTABLE	NAVSEA								
17	2	HOSPITAL BERTH LOCKER	NAVSEA								
18	1	LABORATORY LOCKER	BUMED								
19	5	LIGHT, EMERGENCY	NAVSEA					X			
20	1	LIGHT, MINOR SURGICAL	BUMED	X							
21	1	MICROSCOPE (PORTABLE)	BUMED	X							
22	1	MINOR OPERATING TABLE	BUMED								
23	1	MIRROR	NAVSEA								
24	2	NURSE CALL BUTTON	NAVSEA	X							
25	1	PAPER TOWEL DISPENSER	COMMERCIAL								
26	1	REFRIGERATOR, UNDERCOUNTER, EXPLOSIONPROOF	NAVSEA	X							
27	1	SAFE LOCKER, TYPE 6	NAVSEA								
28	1	SCALES, HEIGHT AND WEIGHT (PORTABLE)	BUMED								
29	2	SEPARATE PILLOW SPEAKER CONNECTOR AND SELECTOR	NAVSEA						X		
30	1	SHELF FOR STERILIZER	NAVSEA								
31	1	SHOWER	NAVSEA		X	X	X				
32	1	SHOWER STALL, WITH CURTAIN	NAVSEA								
33	1	SINK, LAVATORY, WITH CABINET UNDER	BUMED		X	X	X				
34	1	SINK, SERVICE (DEEP)	NAVSEA		X	X	X				
35	1	SINK, SURGICAL	BUMED		X	X	X				
36	1	STERILIZER, STEAM, COUNTERTOP (PORTABLE)	BUMED	X							
37	1	STOOL, ADJUSTABLE (PORTABLE)	NAVSEA								
38	1	STOOL, LOW (PORTABLE)	NAVSEA								
39	1	SURGICAL DETERGENT DISPENSER	BUMED								
40	2	SURGICAL OXYGEN BOTTLE	BUMED								
41	1	SURGICAL SUCTION AND PRESSURE APPARATUS (MOBILE)	BUMED	X							
42	1	TABLE, INSTRUMENT AND DRESSING (MOBILE)	BUMED								
43	3	TOWEL RACK	NAVSEA								
44	1	UNDERCOUNTER STOWAGE	BUMED								
45	1	WATER CLOSET	NAVSEA							X	X
46	1	WATER CLOSET STALL	NAVSEA								

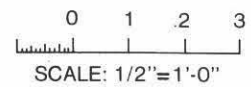
SERVICES

- A 110V 60HZ ELECTRICITY
- B COLD FRESH WATER
- C HOT FRESH WATER
- D DRAINAGE
- E EMERGENCY ELECTRICAL SUPPLY
- F AUDIO INPUT
- G SALT WATER
- H SEWAGE DRAINAGE

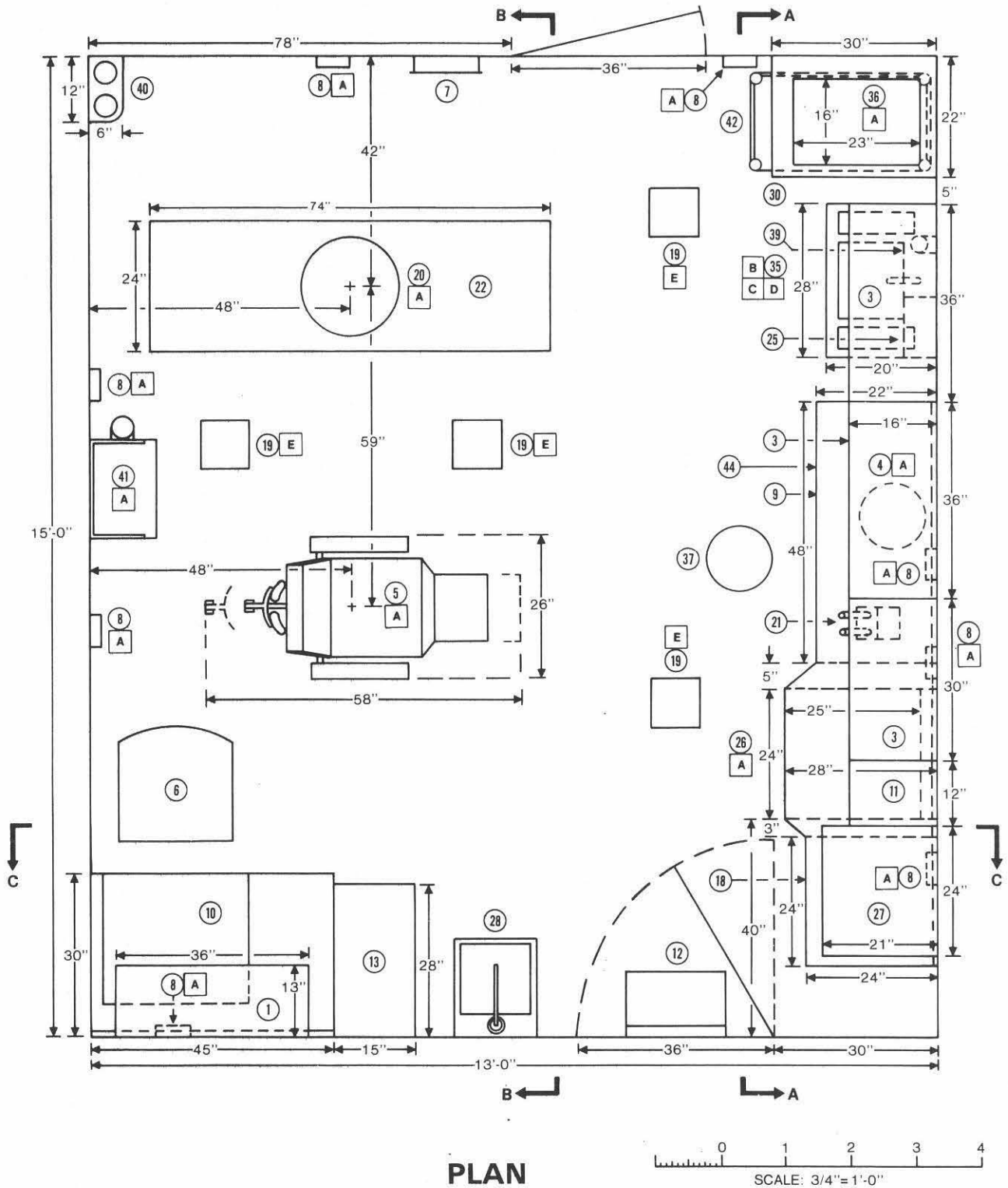
MEDICAL TREATMENT UNIT



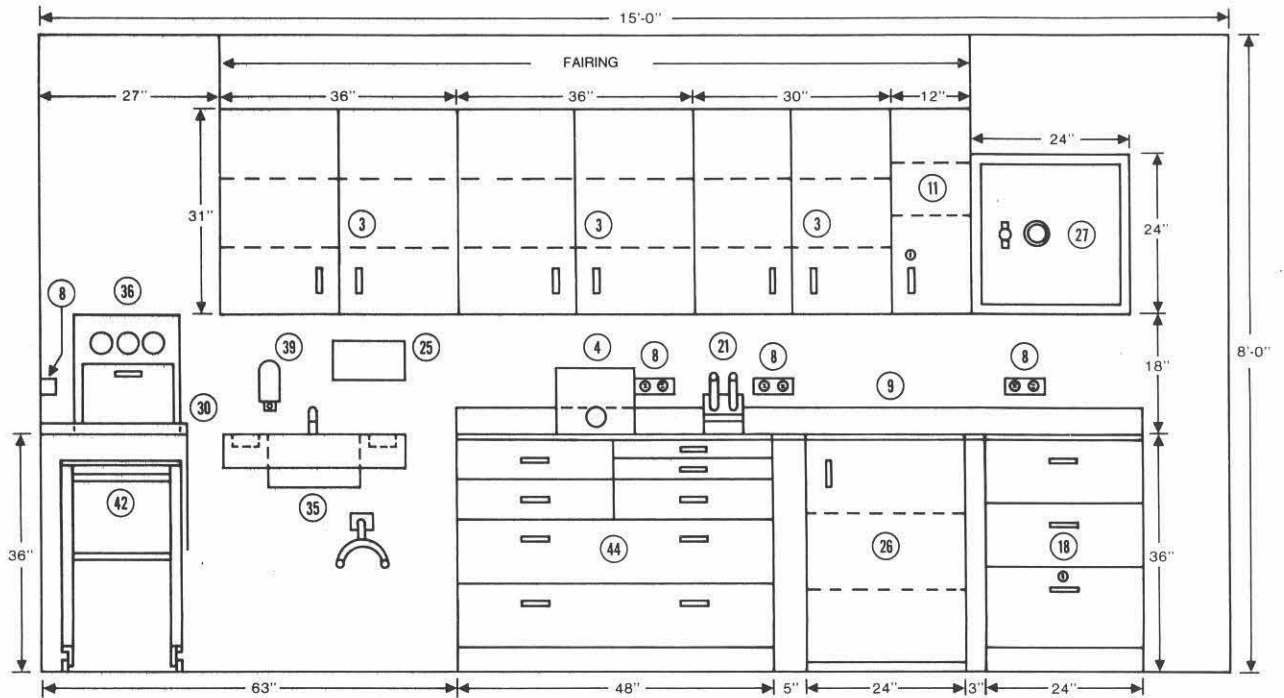
ARRANGEMENT



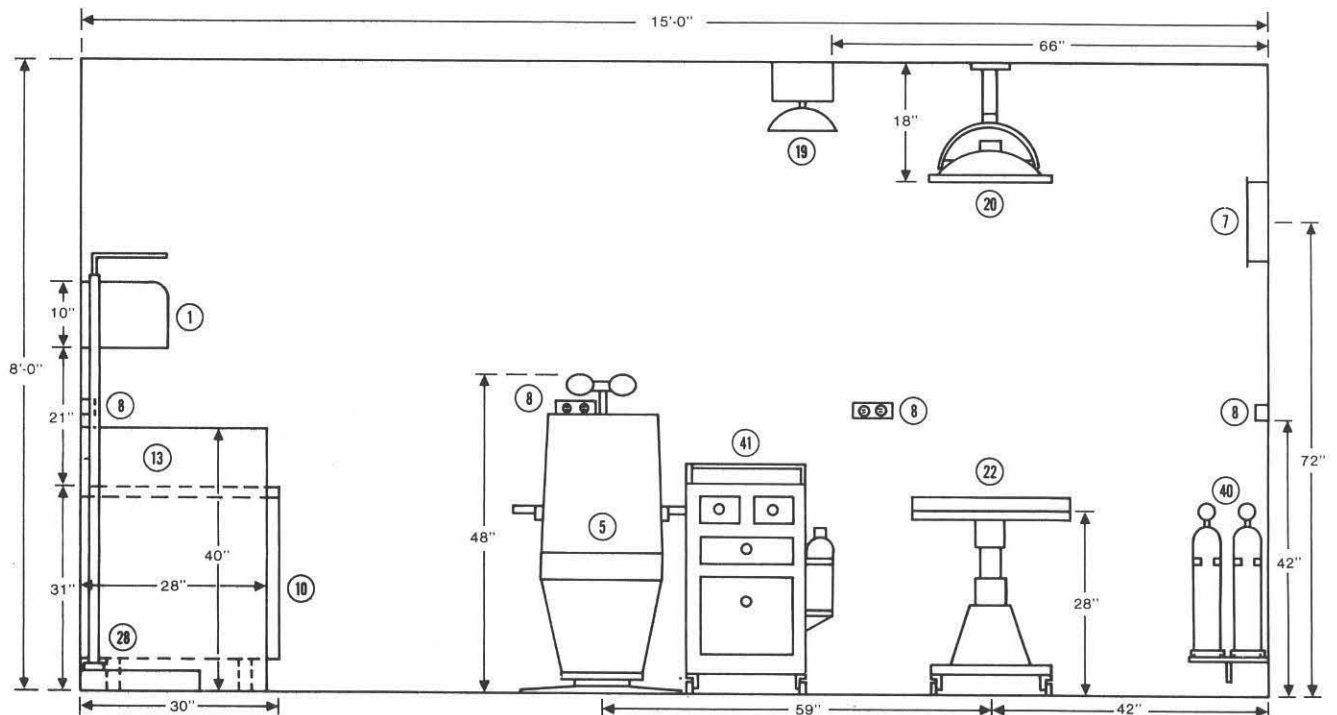
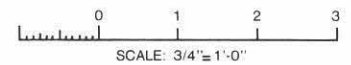
MEDICAL TREATMENT ROOM



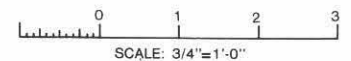
MEDICAL TREATMENT ROOM



ELEVATION A-A

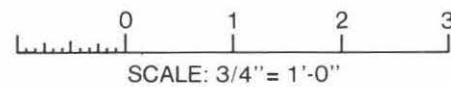


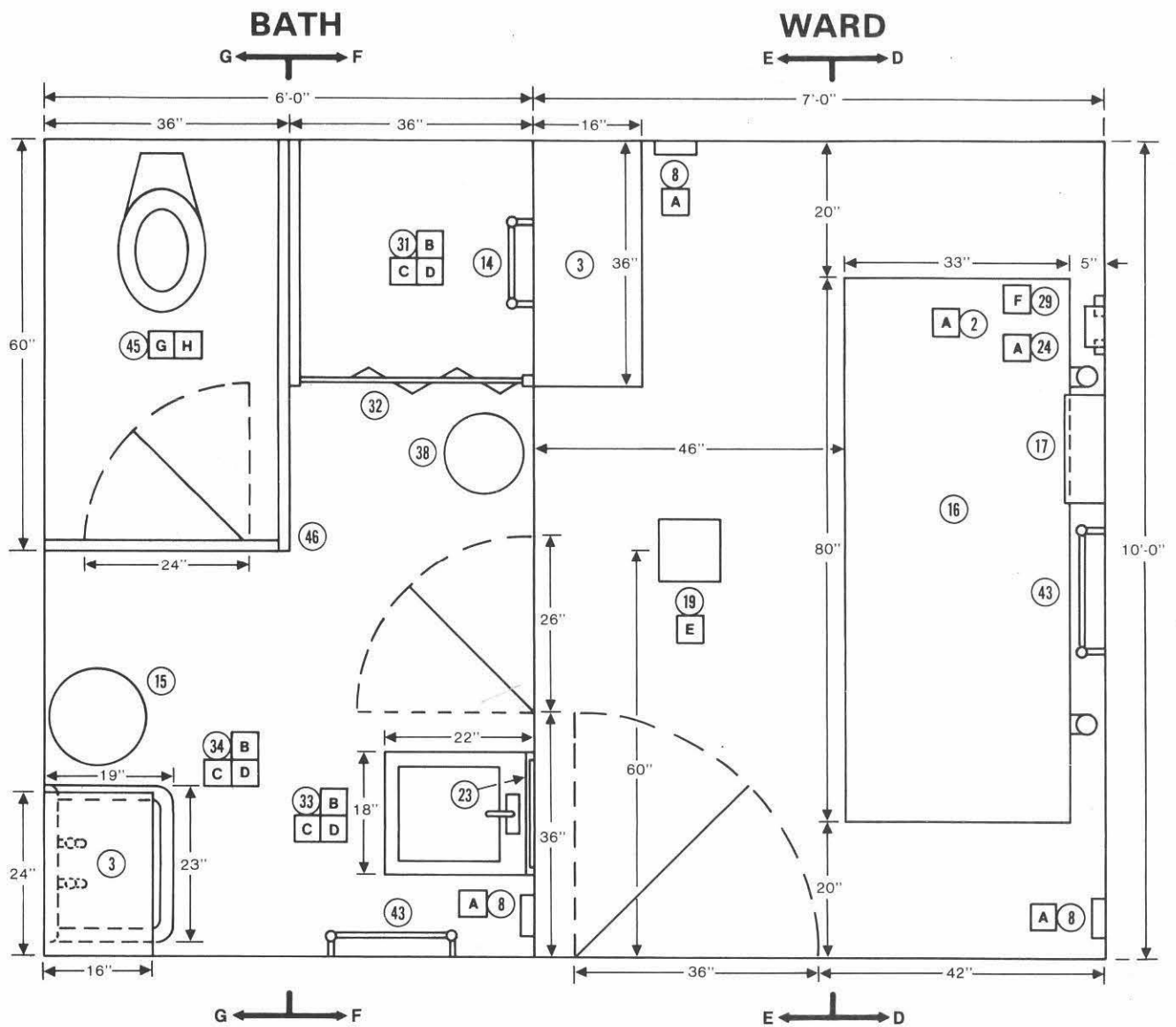
ELEVATION B-B



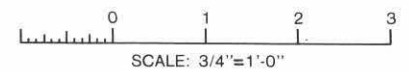
1.10

ELEVATION C-C

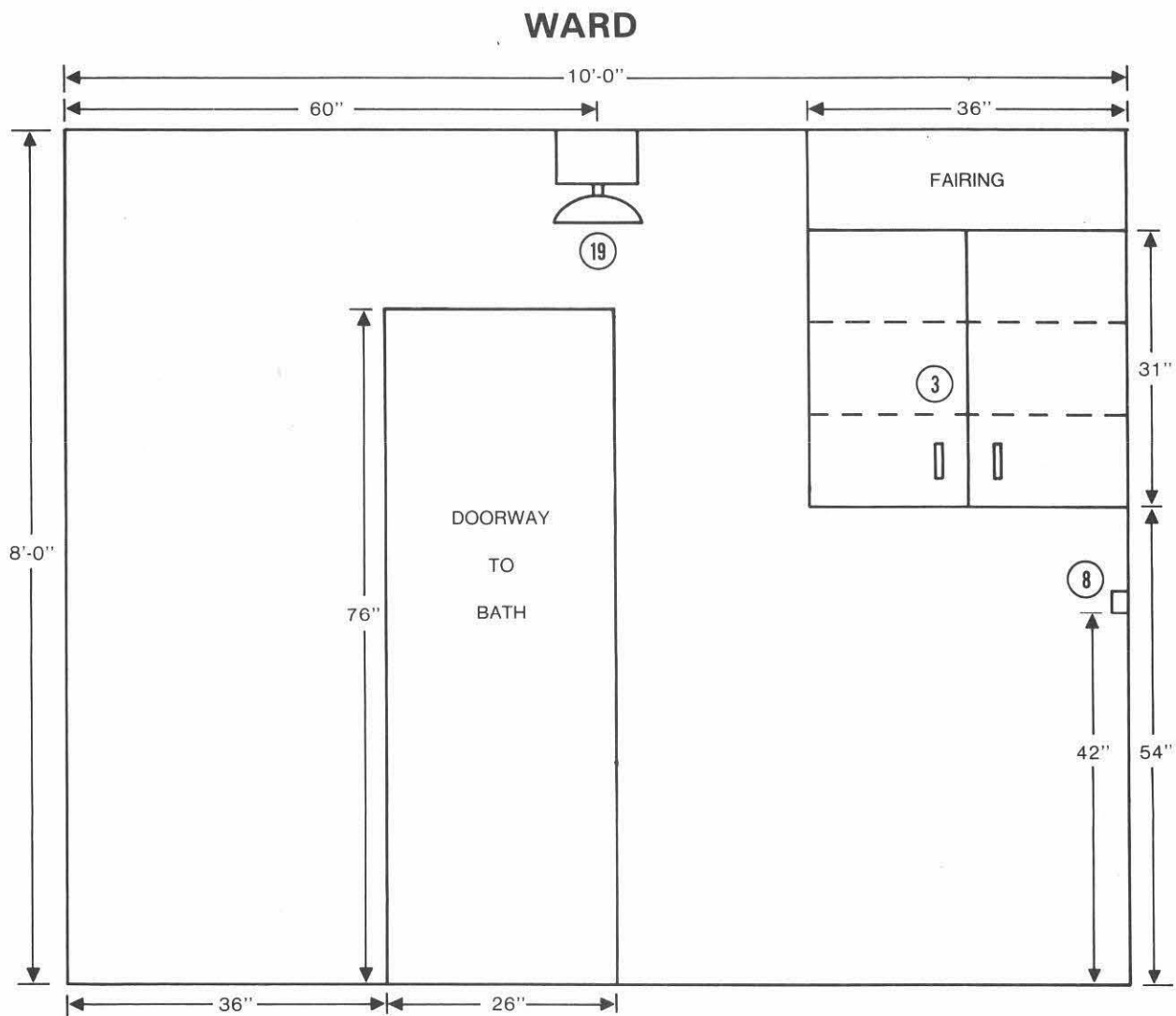




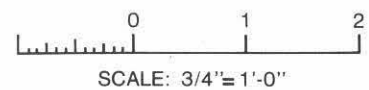
PLAN



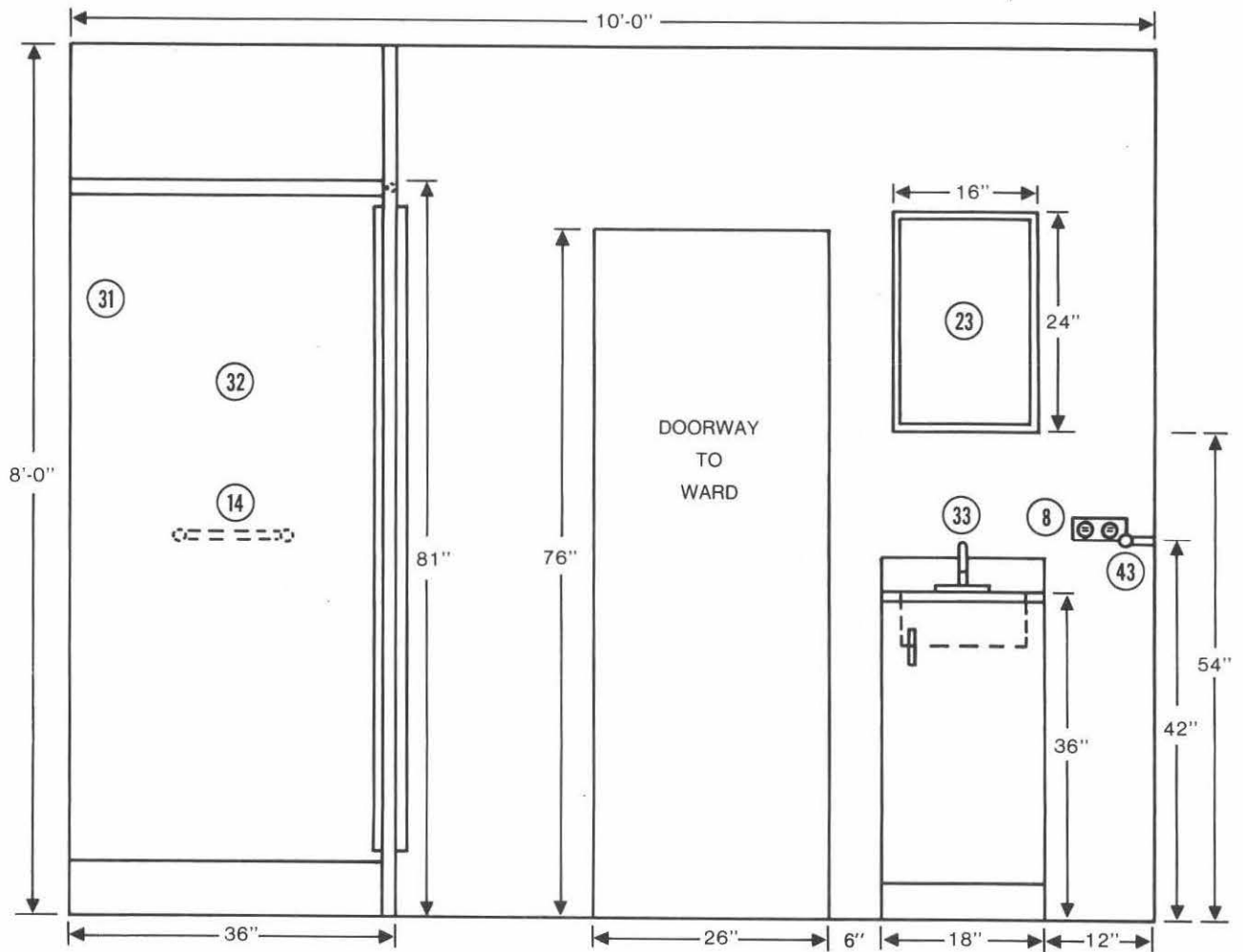
Technical drawing of a kitchen island layout showing two configurations. The top configuration shows a 10'-0" wide island with a 4" thick countertop and a 36" high cabinet. The bottom configuration shows a 10'-0" wide island with a 4" thick countertop and a 42" high cabinet. Both configurations include a sink (17), a stove (16), and a refrigerator (18). Dimensions are provided for the island, countertop, and cabinet heights.



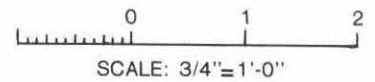
ELEVATION E-E

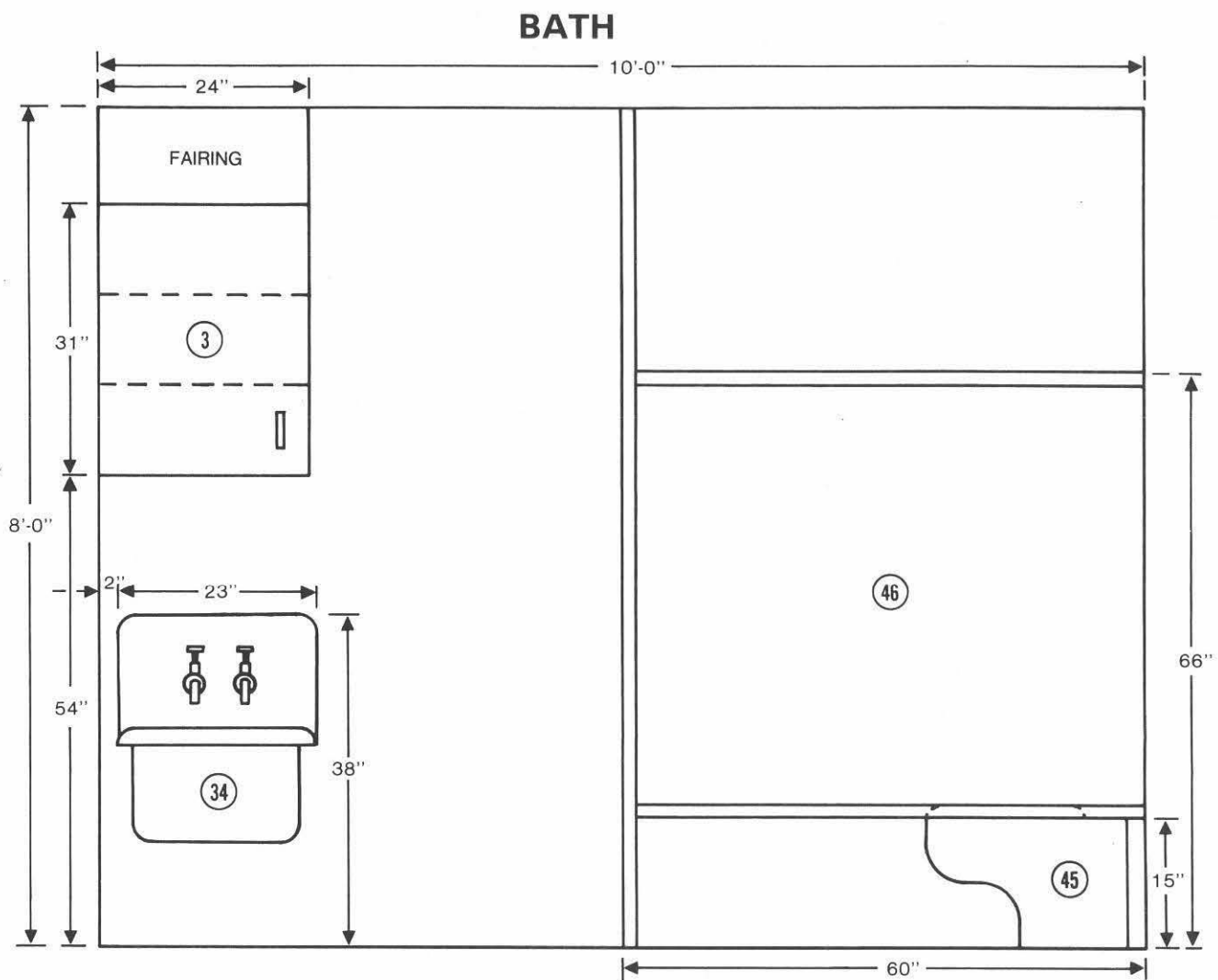


BATH

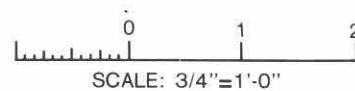


ELEVATION F-F





ELEVATION G-G



SECTION 2

DESIGN CRITERIA

FOR

EYE EXAMINATION/RANGE ROOMS

April 1976

DESIGN CRITERIA FOR EYE EXAMINATION/RANGE ROOMS

Purpose

These design criteria are intended by the Bureau of Medicine and Surgery to assist the Naval Sea Systems Command in designing and building shipboard Eye Examination/Range Rooms which will most efficiently and economically accomplish their purpose. They embody an arrangement of modern types of equipment which will take advantage of recent advances in medical techniques and equipment design. At the same time, they require a minimum of space. It is expected that they will provide a rational basis for the usual structural and arrangement drawings. There is no intention to abridge good design and shipbuilding practice.

Adherence to the arrangement shown is highly important. Dimensions shown (except for the overall dimensions) are intended to be typical and are not meant to be restrictive with respect to the suppliers of the equipment. Minor adjustments may be necessary to accommodate the equipment provided. Overall dimensions show the minimum acceptable usable area.

The equipment and service connections shown are confined to the major fixed and portable items necessary to accomplish the medical mission of the rooms. There is no intent to include the nonmedical equipment routinely provided in such spaces, e.g., ventilation ducts, space lighting, etc., which must not infringe on the working area.

Specific Criteria

1. The intent is to design an Eye Examination/Range Room that is suitable for installation in major ships whose missions require such a facility. This space is intended for use with either the Aviation Examining and EENT Room, or with the Eye, Ear, Nose, and Throat (EENT) Room, whichever is installed,

and should be located immediately adjacent thereto, as their functions are related. The Eye Examination/Range Room provides: (1) the space and equipment for performing comprehensive ophthalmological examination, and (2) a booth for checking, fitting, and dispensing eyeglasses. The booth is separated from the remainder of the space by a joiner bulkhead in order to minimize the interference between the examining function and the checking and fitting functions when they are being carried out simultaneously. The doorway between the booth and the examining area is closed by a track-mounted curtain which is to be opaque and should be carefully fitted so as to avoid excessive light leakage into the examining area.

2. The examining and treatment chair is to be so located that in one orientation the patient views the projection screen at a distance of approximately 16'-9"; in the second orientation, which is obtained by rotating the chair approximately 180 degrees, the patient views the tangent screen at a distance of approximately 39.4" or one meter. This location is predicated on the expectation that, in the general case, the eyes of the patient will be acceptably close to a transverse vertical plane through the extended vertical axis of rotation of the chair (within approximately 1"). The distance between the axes of rotation of the chair and the phoropter stand must be sufficient to permit the clockwise rotation of the chair in the upright position without interference between the two pieces of equipment. Also, the chair must be so located as to permit its use in the reclining position.

3. The tangent screen and the projection screen are to be bulkhead-mounted. The latter is to be mounted on gimbals or some other type of support that will permit the requisite rotation about the vertical and the transverse horizontal axes. Both screens must be so constructed and mounted that they will not flap or billow as a result of motion of the ship.

4. In the interest of conserving space, certain equipment of marginal usefulness aboard ship is not provided. The ophthalmological perimeter is an example of such equipment.
5. The phoropter stand is to carry an overhead lamp, phoropter, slit light, and projector. This multiple mounting provides the maximum in compactness.
6. Because the light bulbs in the equipment on the phoropter stand are sensitive to voltage variations and may be burned out by voltage surges, the electrical supply should incorporate the necessary protection against such variations.
7. A rheostat for the control of the illumination level in the examination space is to be provided, either on the phoropter stand or in a convenient location on the bulkhead within easy reach of the doctor when he is in front of the patient. This rheostat must not affect the lighting in the fitting booth.
8. Two counters of desk height (30") are provided. One is to serve the doctor as a desk, and the other performs a similar function for the technician in the dispensing booth. Counters are used in place of desks as they are more compact.
9. The chair in the fitting booth has two uses. In addition to being used by the technician when working at the desk-height counter, it will also be used by the patient when his eyeglasses are being fitted. In the latter usage, the chair will be turned 90 degrees, so that the patient will face the technician, who will be seated on the stool. One of the shallow drawers in the 36" high undercounter stowage should be equipped with a shallow tray, so that when opened, the drawer will provide a working surface between the technician and the patient.

10. The provisions of the Air Conditioning, Ventilation, and Heating Design Criteria Manual for Surface Ships of the United States Navy, 1 July 1969, N.S. 0938-018-0010, are applicable.
11. Cabinets and other furniture are to be made of steel, excepting trim, which may be made of an acceptable fire-retardant material.
12. All drawers and cabinet doors are to be equipped with readily operated, positive latches to prevent opening as a result of ship motion, and the shelves are to be provided with lips to prevent material from sliding off because of the ship's motion. The shelf spacing should be adjustable.
13. Mobile equipment is to have retractable casters or other means to prevent movement as a result of ship motion. In addition, simple securing devices must be provided for the stowed positions.
14. The height of the overhead shall be at least 8 feet, and the overhead is to be fully sheathed.
15. The noise level is to be Category C of the General Specifications for Ships of the United States Navy.
16. The lighting is in accordance with the General Specifications for Ships of the United States Navy.
17. Vibration levels at all ship speeds should be low enough so as not to interfere with any major function.
18. Eye examination/range rooms, in common with other medical spaces, should provide as stable a platform as practicable through ship stabilization or other means.
19. Furniture and equipment will conform to Grade C shock standards.

Drawing Notes

1. The numbers in circles (③) identify pieces of equipment; the letters in squares ([A]) identify services which are required, approximately in the locations shown. The exact locations will be in accordance with the recommendations of the equipment suppliers.
2. Details such as wiring, tubing, and piping have been omitted in the interest of simplicity.
3. Inches may be converted to metric equivalents by the use of the following table.

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10	254.0	279.4	304.8	330.2	355.6	381.0	406.4	431.8	457.2	482.6
20	508.0	533.4	558.8	584.2	609.6	635.0	660.4	685.8	711.2	736.6
30	762.0	787.4	812.8	838.2	863.6	889.0	914.4	939.8	965.2	990.6
40	1016.0	1041.4	1066.8	1092.2	1117.6	1143.0	1168.4	1193.8	1219.2	1244.6
50	1270.0	1295.4	1320.8	1346.2	1371.6	1397.0	1422.4	1447.8	1473.2	1498.6
60	1524.0	1549.4	1574.8	1600.2	1625.6	1651.0	1676.4	1701.8	1727.2	1752.6
70	1778.0	1803.4	1828.8	1854.2	1879.6	1905.0	1930.4	1955.8	1981.2	2006.6
80	2032.0	2057.4	2082.8	2108.2	2133.6	2159.0	2184.4	2209.8	2235.2	2260.6
90	2286.0	2311.4	2336.8	2362.2	2387.6	2413.0	2438.4	2463.8	2489.2	2514.6
100	2540.0	...	...	...	...	...	...	...	...	...

Note: Values in this table are based upon the relation 1 in. = 25.4 mm. By manipulating the decimal point, any decimal value or multiple of an inch may be converted to its equivalent in millimetres, centimetres, or metres.

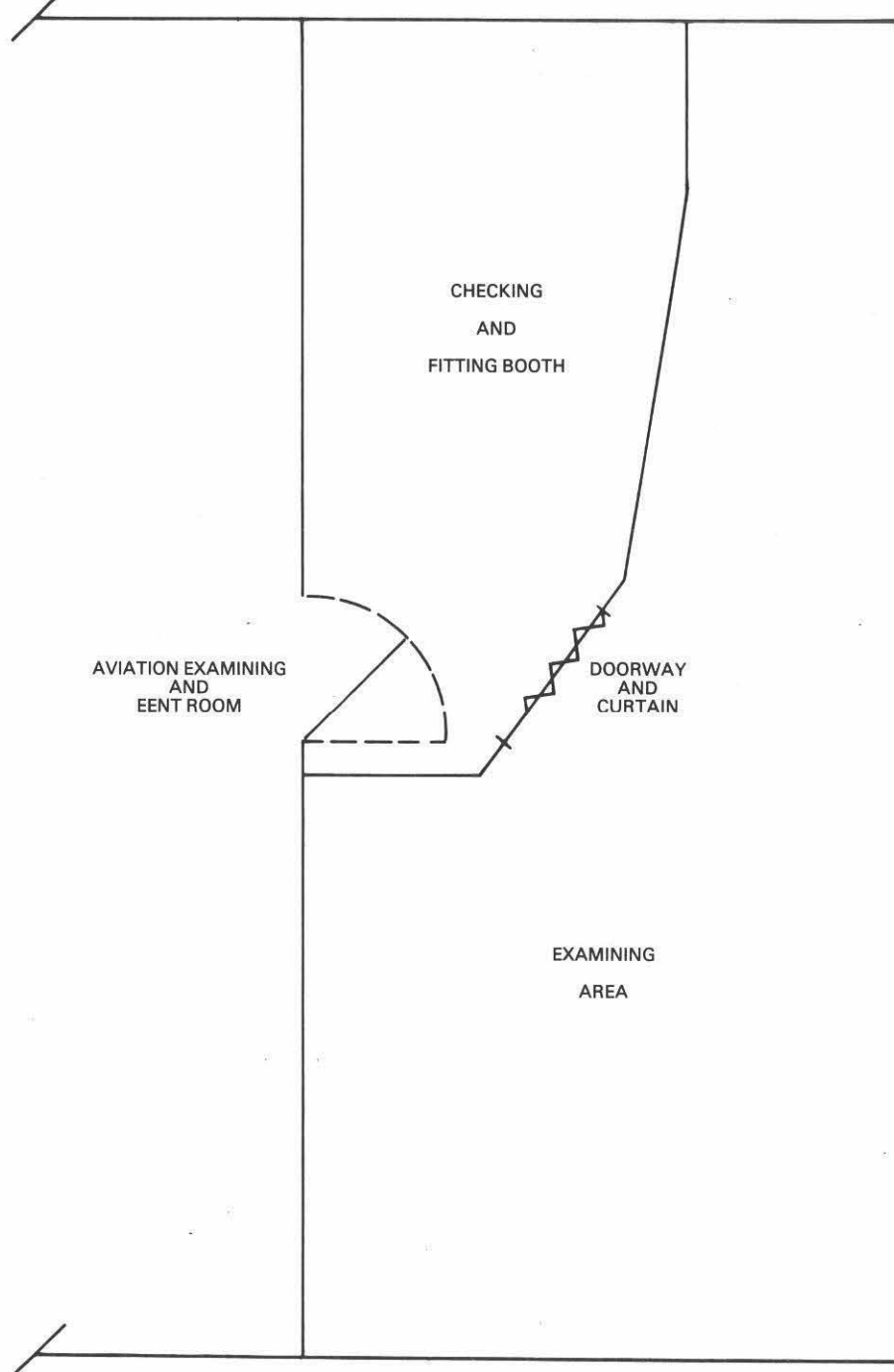
EYE EXAMINATION/RANGE ROOM MAJOR EQUIPMENT AND SERVICES

ITEM NO.	QTY.	EQUIPMENT	SPECIFICATION	SERVICES REQUIRED			
				A	B	C	D
1	1	CHAIR, EXAMINING AND TREATMENT	BUMED	X			
2	1	CHAIR, TYPIST'S (MOBILE)	NAVSEA				
3	6	CONVENIENCE ELECTRICAL OUTLET (DOUBLE)	NAVSEA	X			
4	2	COUNTER, 30" HIGH (SERVES AS DESK)	BUMED				
5	1	COUNTER, 36" HIGH, WITH STOWAGE UNDER	BUMED				
6	1	CURTAIN, OPAQUE, TRACK-MOUNTED	NAVSEA				
7	2	DETERGENT DISPENSER	BUMED				
8	1	FRAME WARMER (HOT BOX) (PORTABLE)	BUMED	X			
9	1	LAMP, OVERHEAD	BUMED	X			
10	1	LENSOMETER (PORTABLE)	BUMED	X			
11	1	MIRROR	NAVSEA				
12	2	PAPER TOWEL DISPENSER	NAVSEA				
13	1	PHOROPTER	BUMED				
14	1	PHOROPTER STAND	BUMED	X			
15	1	PROJECTION SCREEN, ON GIMBALS	BUMED				
16	1	PROJECTOR, OPHTHALMOLOGICAL	BUMED	X			
17	1	RHEOSTAT, ROOM - LIGHTING (IF NOT ON STAND)	NAVSEA	X			
18	2	SINK, WITH CABINET	BUMED		X	X	X
19	1	SLIT LIGHT, OPHTHALMOLOGICAL	BUMED	X			
20	2	STOOL, ON CASTERS (MOBILE)	BUMED				
21	1	TANGENT SCREEN	BUMED				
22	1	TRIAL LENS CABINET, WITH STOWAGE UNDER	BUMED				

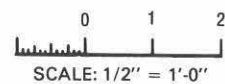
SERVICES

- A 110V 60Hz ELECTRICITY
- B COLD FRESH WATER
- C HOT FRESH WATER
- D DRAINAGE

EYE EXAMINATION/RANGE ROOM



ARRANGEMENT



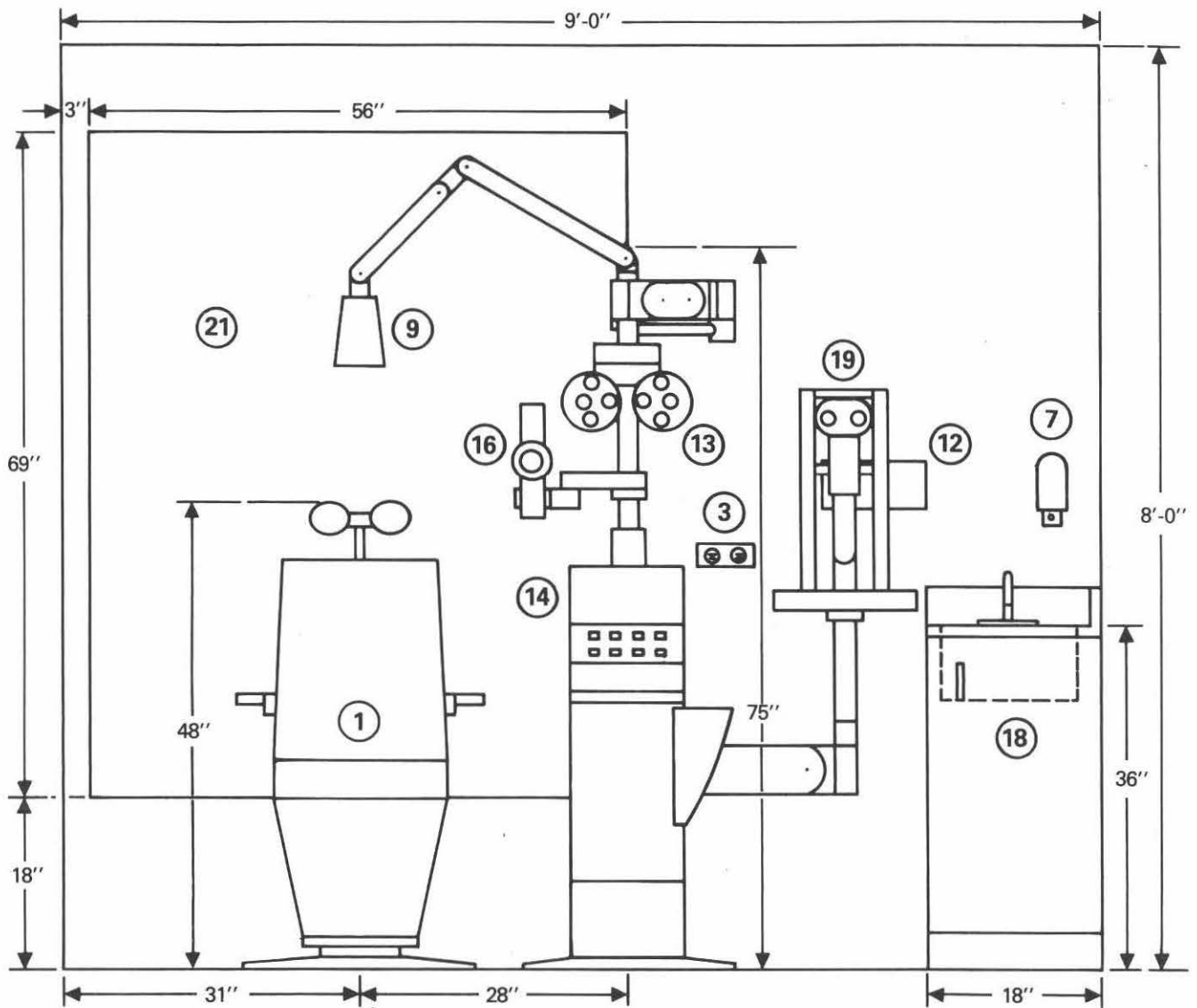
B ← → **C**



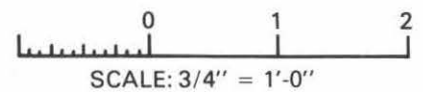
SCALE: 3/4" = 1'-0"

2.8

EYE EXAMINATION/RANGE ROOM



ELEVATION A-A



8'-0"

11'-3"

30"

42"

30"

30"

18"

18"

18"

76"

36"

7'-6"

26"

6"

DOORWAY

11

12

10

18

3

4

5

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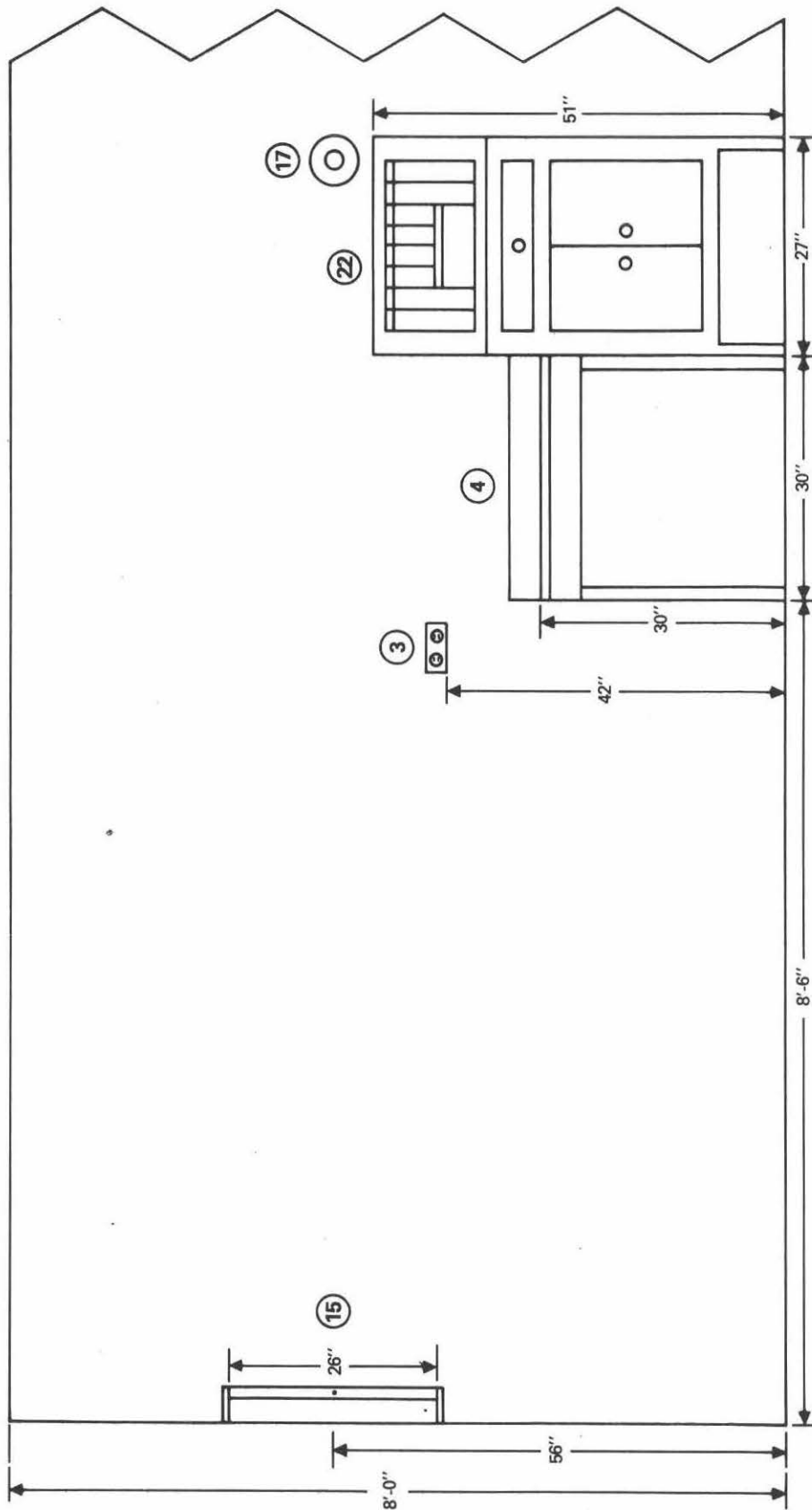
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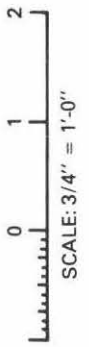
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EYE EXAMINATION RANGE ROOM



ELEVATION C — C



SECTION 3

DESIGN CRITERIA

FOR

MEDICAL OFFICES

AND

CONSULTATION ROOMS

April 1976

DESIGN CRITERIA FOR MEDICAL OFFICES AND CONSULTATION ROOMS

Purpose

These design criteria are intended by the Bureau of Medicine and Surgery to assist the Naval Sea Systems Command in designing and building shipboard Medical Offices and Consultation Rooms which will most efficiently and economically accomplish their purpose. They embody an arrangement of modern types of equipment which will take advantage of recent advances in medical techniques and equipment design. At the same time, they require a minimum of space. It is expected that they will provide a rational basis for the usual structural and arrangement drawings. There is no intention to abridge good design and shipbuilding practice.

Adherence to the arrangement shown is highly important. Dimensions shown (except for the overall dimensions) are intended to be typical and are not meant to be restrictive with respect to the suppliers of the equipment. Minor adjustments may be necessary to accommodate the equipment provided. Overall dimensions show the minimum acceptable usable area.

The equipment and service connections shown are confined to the major fixed and portable items necessary to accomplish the medical mission of the rooms. There is no intent to include the nonmedical equipment routinely provided in such spaces, e.g., ventilation ducts, space lighting, etc., which must not infringe on the working area.

Specific Criteria

1. The intent is to provide a space which will serve as an office and consultation room for a medical officer on board ship. The number to be provided would depend upon the number of medical officers to be accommodated,

with due regard to mobilization requirements. In the interest of flexibility, criteria are provided for two arrangements, namely,

- a. Medical Office and Consultation Room
- b. Medical Office and Consultation Room (Compact)

2. Normally, the Medical Offices and Consultation Rooms (a. above) are to be provided in capital ships, as the arrangement and area allotted are markedly superior to those in the compact version (b. above). One important consideration is the fact that the larger space affords access from three sides to a patient on the examination and treatment table, whereas the compact version permits access from only two sides. Therefore, the compact design is to be used only when required by space limitations. Both spaces are multifunctional, in that they combine the functions of private offices and private consultation rooms. In addition, minor treatment could be undertaken in either space if necessary in an emergency.

3. A minor surgical light and a fiber optics light fitting are indicated in each design, and a 36" door is provided to permit the passage of a litter. These features are intended to increase the versatility of the space in an emergency.

4. The provisions of the Air Conditioning, Ventilation and Heating Design Criteria Manual for Surface Ships of the United States Navy, 1 July 1969, N.S. 0938-018-0010 are applicable. The spaces are to be soundproofed and the noise level is to be Category C of the General Specifications for Ships of the United States Navy.

5. Cabinets and other furniture are to be made of steel, excepting trim, which may be made of an acceptable fire-retardant material.

6. The height of the overhead shall be at least 8', and the overhead is to be fully sheathed. To avoid interference with personnel, the lowest fixed portion of the minor surgical light and the optical fiber light fitting must be at least 6'-6" above the deck.
7. Chairs are to have retractable casters or other means to prevent movement as a result of the ship's motion and cabinet drawers are to be equipped with easily operated latches to prevent their opening from the same cause.
8. The lighting and shock resistance are to meet the requirements of the General Specifications for Ships of the United States Navy.

Drawing Notes

1. The numbers in circles (③) identify pieces of equipment; the letters in squares ([A]) identify services which are required, approximately in the locations shown. The exact locations will be in accordance with the recommendations of the equipment suppliers. Mobile equipment is shown in the stowed positions.
2. Details such as wiring, tubing, and piping have been omitted in the interest of simplicity.
3. Inches may be converted to metric equivalents by the use of the following table.

INCH-MILLIMETRE EQUIVALENTS

in.	0	1	2	3	4	5	6	7	8	9
	mm									
0		25.4	50.8	76.2	101.6	127.0	152.4	177.8	203.2	228.6
10	254.0	279.4	304.8	330.2	355.6	381.0	406.4	431.8	457.2	482.6
20	508.0	533.4	558.8	584.2	609.6	635.0	660.4	685.8	711.2	736.6
30	762.0	787.4	812.8	838.2	863.6	889.0	914.4	939.8	965.2	990.6
40	1016.0	1041.4	1066.8	1092.2	1117.6	1143.0	1168.4	1193.8	1219.2	1244.6
50	1270.0	1295.4	1320.8	1346.2	1371.6	1397.0	1422.4	1447.8	1473.2	1498.6
60	1524.0	1549.4	1574.8	1600.2	1625.6	1651.0	1676.4	1701.8	1727.2	1752.6
70	1778.0	1803.4	1828.8	1854.2	1879.6	1905.0	1930.4	1955.8	1981.2	2006.6
80	2032.0	2057.4	2082.8	2108.2	2133.6	2159.0	2184.4	2209.8	2235.2	2260.6
90	2286.0	2311.4	2336.8	2362.2	2387.6	2413.0	2438.4	2463.8	2489.2	2514.6
100	2540.0									

Note: Values in this table are based upon the relation 1 in. = 25.4 mm. By manipulating the decimal point, any decimal value or multiple of an inch may be converted to its equivalent in millimetres, centimetres, or metres.

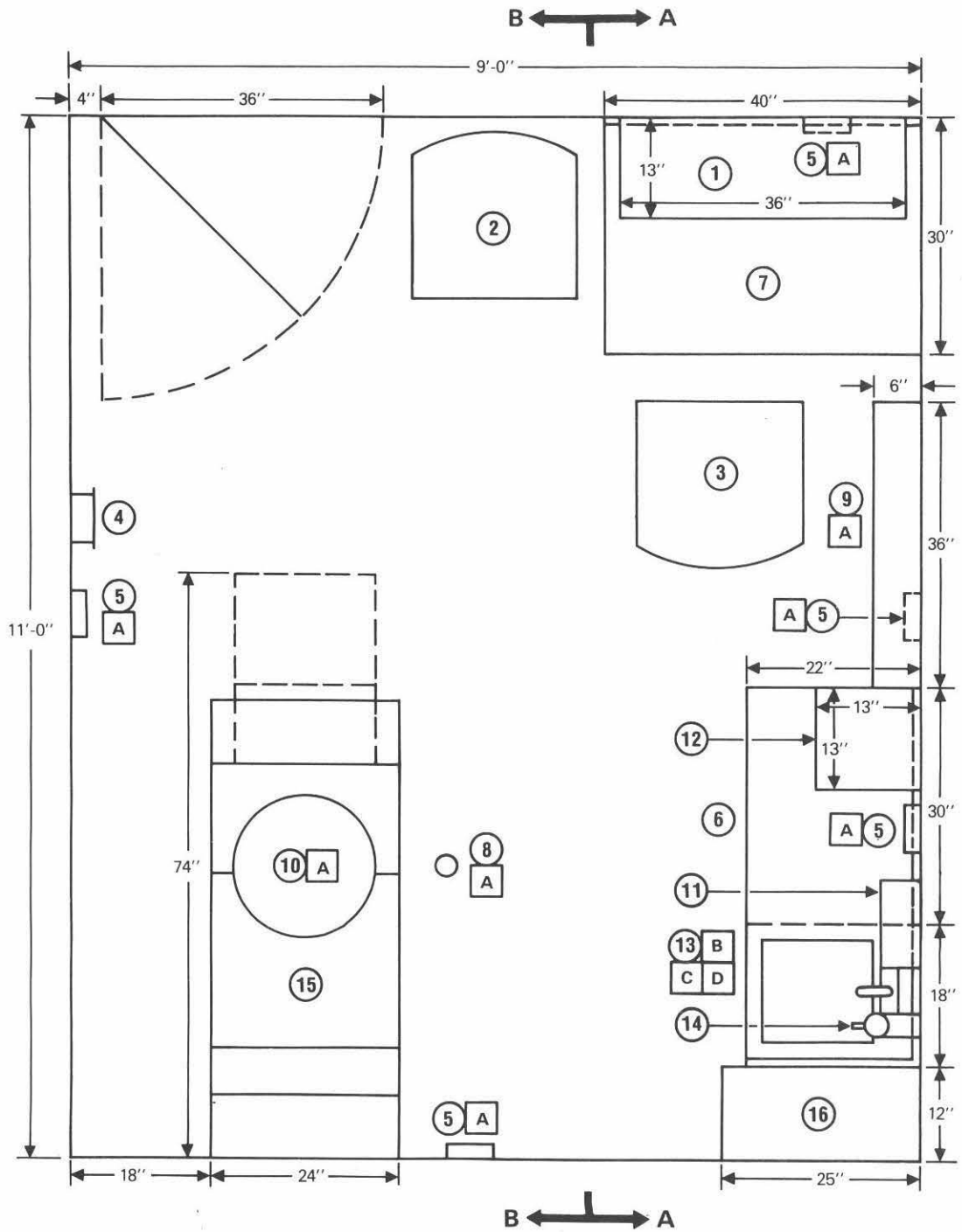
MEDICAL OFFICE AND CONSULTATION ROOM MAJOR EQUIPMENT AND SERVICES

ITEM NO.	QTY.	EQUIPMENT	SPECIFICATION	SERVICES REQUIRED			
				A	B	C	D
1	1	BOOK RACK	NAVSEC				
2	1	CHAIR, STRAIGHT	NAVSEC				
3	1	CHAIR, SWIVEL	NAVSEC				
4	1	CLOCK, 6", BULKHEAD-MOUNTED	NAVSEC				
5	5	CONVENIENCE ELECTRICAL OUTLET (DOUBLE)	NAVSEC	X			
6	1	COUNTER, WITH STOWAGE UNDER	BUMED				
7	1	DESK, FLAT TOP, SINGLE PEDESTAL	NAVSEC				
8	1	FIBER OPTICS LIGHT FITTING	BUMED	X			
9	1	ILLUMINATOR, X-RAY, VARIABLE INTENSITY	BUMED	X			
10	1	MINOR SURGERY LIGHT	BUMED	X			
11	1	PAPER TOWEL DISPENSER	COMMERCIAL				
12	1	SAFE LOCKER	NAVSEC				
13	1	SINK	BUMED		X	X	X
14	1	SURGICAL DETERGENT DISPENSER	BUMED				
15	1	TABLE, EXAMINING AND TREATMENT	BUMED				
16	1	WARDROBE	NAVSEC				

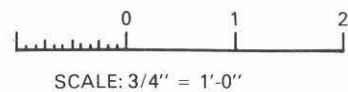
SERVICES

- A 110 V 60 HZ ELECTRICITY
- B COLD FRESH WATER
- C HOT FRESH WATER
- D DRAINAGE

MEDICAL OFFICE AND CONSULTATION ROOM

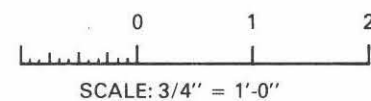


PLAN



3.7

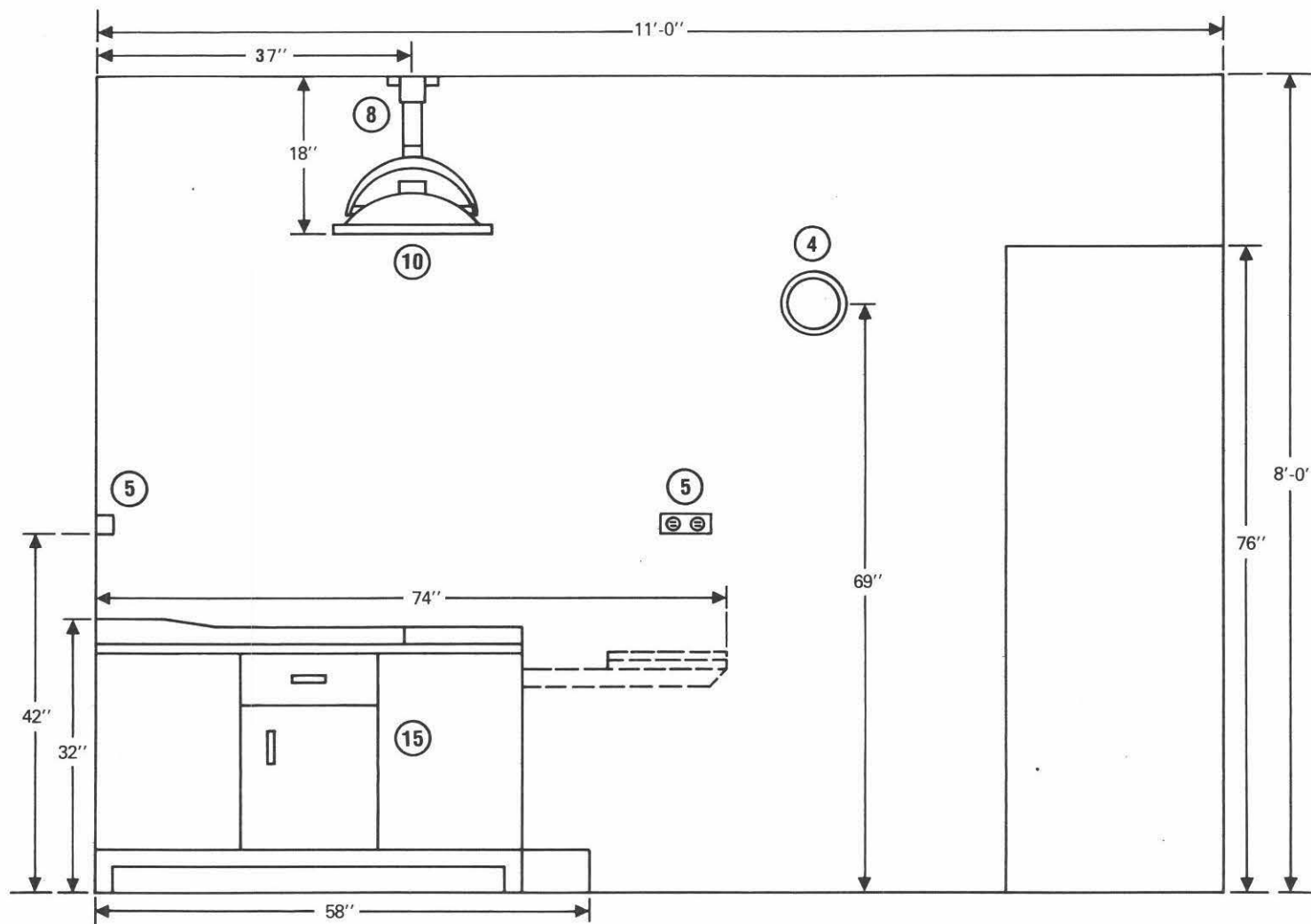
ELEVATION A-A



April 1976

3.8

MEDICAL OFFICE AND CONSULTATION ROOM



ELEVATION B-B



SCALE: 3/4" = 1'-0"

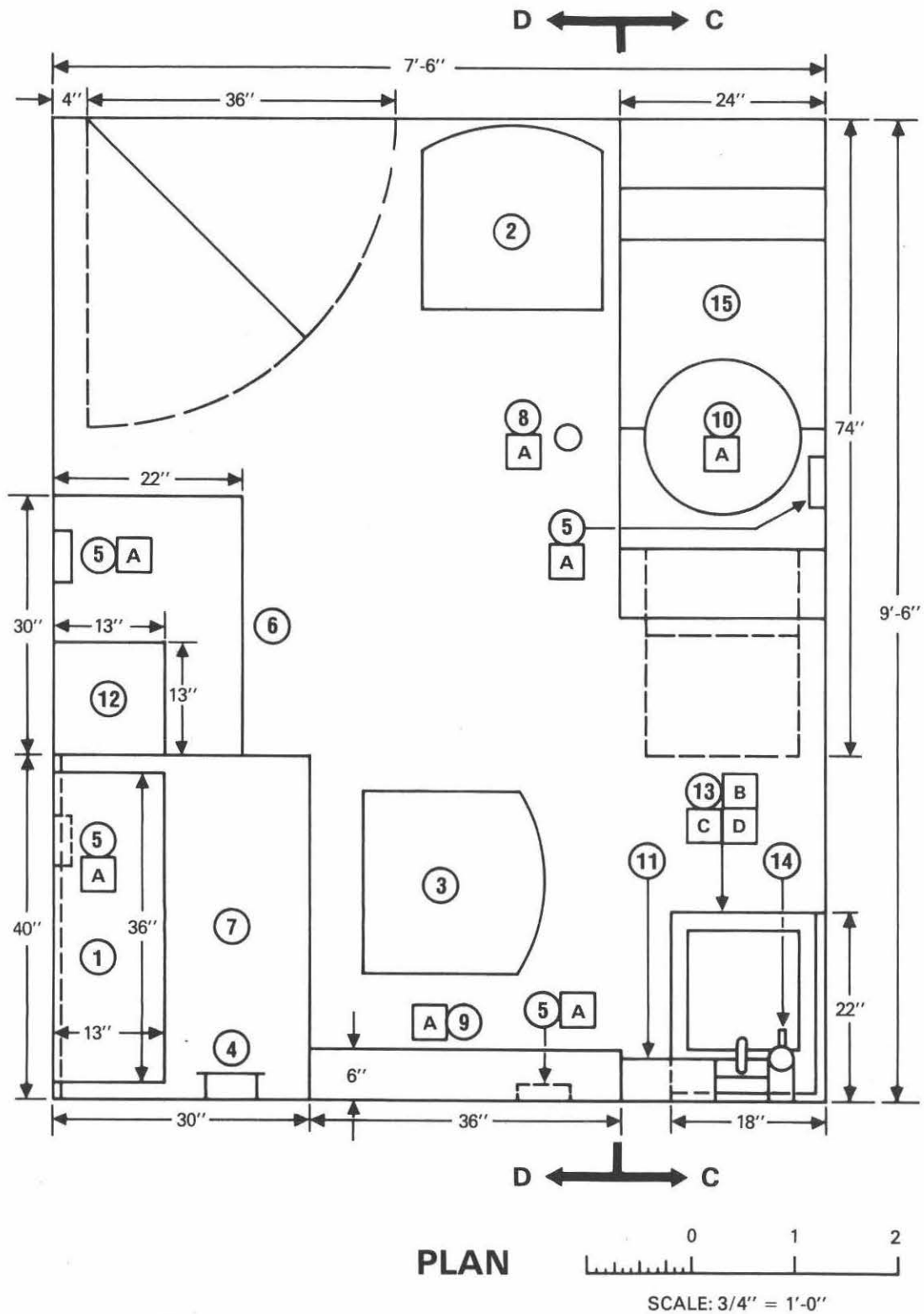
MEDICAL OFFICE AND CONSULTATION ROOM (COMPACT) — MAJOR EQUIPMENT AND SERVICES

ITEM NO.	QTY.	EQUIPMENT	SPECIFICATION	SERVICES REQUIRED			
				A	B	C	D
1	1	BOOK RACK	NAVSEC				
2	1	CHAIR, STRAIGHT	NAVSEC				
3	1	CHAIR, SWIVEL	NAVSEC				
4	1	CLOCK, 6", BULKHEAD-MOUNTED	NAVSEC				
5	4	CONVENIENCE ELECTRICAL OUTLET (DOUBLE)	NAVSEC	X			
6	1	COUNTER, WITH STOWAGE UNDER	BUMED				
7	1	DESK, FLAT TOP, SINGLE PEDESTAL	NAVSEC				
8	1	FIBER OPTICS LIGHT FITTING	BUMED	X			
9	1	ILLUMINATOR, X-RAY, VARIABLE INTENSITY	BUMED	X			
10	1	MINOR SURGERY LIGHT	BUMED	X			
11	1	PAPER TOWEL DISPENSER	COMMERCIAL				
12	1	SAFE LOCKER	NAVSEC				
13	1	SINK	BUMED		X	X	X
14	1	SURGICAL DETERGENT DISPENSER	BUMED				
15	1	TABLE, EXAMINING AND TREATMENT	BUMED				

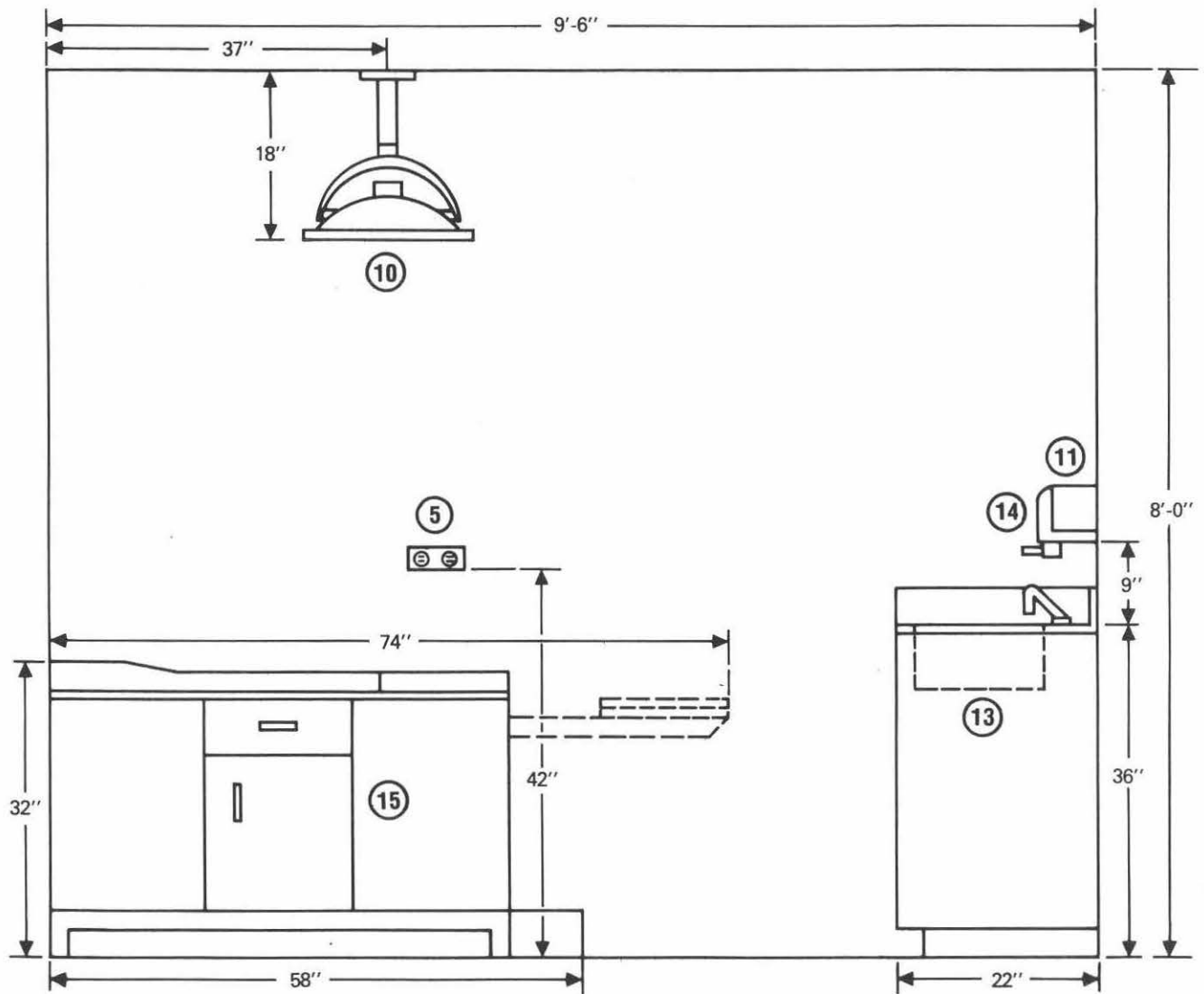
SERVICES

- A 110 V 60 HZ ELECTRICITY
- B COLD FRESH WATER
- C HOT FRESH WATER
- D DRAINAGE

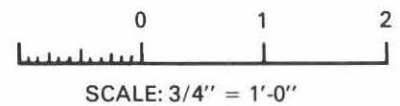
MEDICAL OFFICE AND CONSULTATION ROOM (COMPACT)



MEDICAL OFFICE AND CONSULTATION ROOM (COMPACT)



ELEVATION C-C



Technical drawing of the 8'0" x 9'6" cabinet layout. The drawing includes numbered callouts 1 through 12 and detailed dimensions for the layout.

Overall Dimensions:

- Overall Width: 9'-6"
- Overall Height: 8'-0"

Internal Dimensions and Callouts:

- Callout 1:** Main upper cabinet body, 36" wide and 10" high.
- Callout 2:** Upper right cabinet body, 13" wide and 13" high.
- Callout 3:** Lower left cabinet body, 40" wide and 31" high.
- Callout 4:** Lower right cabinet body, 30" wide and 36" high.
- Callout 5:** Small square component, 17" high.
- Callout 6:** Small square component, 18" high.
- Callout 7:** Small square component, 21" high.
- Callout 8:** Small square component, 37" wide.
- Callout 9:** Small square component, 13" wide.
- Callout 10:** Small square component, 13" high.
- Callout 11:** Small square component, 13" wide.
- Callout 12:** Small square component, 13" high.

Other Dimensions:

- 46" (Total height of lower left section)
- 31" (Height of lower left section)
- 42" (Height of lower left section)
- 36" (Height of lower right section)
- 76" (Total height of lower right section)
- 40" (Width of lower left section)
- 30" (Width of lower right section)

0 1 2

SCALE: $\frac{3}{4}" = 1'-0"$

SECTION 4

DESIGN CRITERIA

FOR

TREATMENT WAITING ROOMS

AND

MEDICAL EMERGENCY EXPANSION SPACES

April 1976

DESIGN CRITERIA FOR TREATMENT WAITING ROOMS AND MEDICAL EMERGENCY EXPANSION SPACES

Purpose

These design criteria are intended by the Bureau of Medicine and Surgery to assist the Naval Sea Systems Command in designing and building shipboard Treatment Waiting Rooms and Medical Emergency Expansion Spaces which will most efficiently and economically accomplish their purpose. They embody an arrangement of modern types of equipment which will take advantage of recent advances in equipment design. At the same time, they require a minimum of space. It is expected that they will provide a rational basis for the usual structural and arrangement drawings. There is no intention to abridge good design and shipbuilding practice.

Adherence to the arrangement shown is highly important. Dimensions shown (except for the overall dimensions) are intended to be typical and are not meant to be restrictive with respect to the suppliers of the equipment. Minor adjustments may be necessary to accommodate the equipment provided. Overall dimensions show the minimum acceptable usable area.

The equipment and service connections shown are confined to the major fixed and portable items necessary to accomplish the medical mission of the rooms. There is no intent to include the nonmedical equipment routinely provided in such spaces, e.g., ventilation ducts, space lighting, etc., which must not infringe on the working area.

Specific Criteria

1. The intent is to provide a treatment waiting room and medical emergency expansion space that is responsive to the needs of a major ship. The area allotted is a compromise which will provide a dedicated waiting room of reasonable capacity without requiring an undue amount of

space. The basic advantage of a dedicated waiting room is that it affords a contiguous, controlled area that is isolated from traffic; at the same time it protects the waiting patients from the sights and sounds associated with the treatment areas. However, in the interest of flexibility and space-saving, the room is designed to be multifunctional, and its other uses are all very important. They are as follows:

- a. In an emergency, the capability to serve as an additional triage or treatment area, if the chairs are removed.
- b. Service as an assembly and training room for the medical processing of drafts, and group personnel training in such areas as first aid, personal hygiene, weight control, hearing conservation, and mass immunization
- c. Functioning as a classroom for medical training courses, promotion examinations, etc.

The multifunctional capability is achieved by the provision of removable classroom type chairs, a slide projector, a roll-down screen, and a closed circuit television receiver, in a room which will normally be adjacent to, or near, the surgical dressing room. The advantages gained justify the modest increase in space required, as compared with the expedient of providing folding benches in passageways to discharge imperfectly the single function of waiting.

2. Furniture is to be made of steel, excepting trim, which may be made of an acceptable, fire-retardant substance.
3. Simple fastening devices are to be provided for securing the chairs in place so that they are not dislodged by the motion of the ship. However, these fastening devices must permit easy disengagement. Similarly, fastenings must be installed for the table.
4. To permit easy access by litter, 36" doors are to be installed.
5. The height of the overhead must be at least 8', and the overhead is to be completely sheathed.

6. The space is to be air conditioned.
7. The noise level is to be Category A of the General Specifications for Ships of the United States Navy.
8. The lighting is to be daylight corrected and the general illumination level is to be 40 foot candles.
9. Equipment is to conform to Grade C shock standards.

Drawings Notes

1. The numbers in circles (③) identify pieces of equipment; the letters in squares ([A]) identify services which are required, approximately in the locations shown. Mobile equipment is shown in the stowed positions.
2. Details such as wiring, tubing, and piping have been omitted in the interest of simplicity.
3. Inches may be converted to metric equivalents by the use of the following table.

INCH-MILLIMETRE EQUIVALENTS

in.	0	1	2	3	4	5	6	7	8	9
mm										
0		25.4	50.8	76.2	101.6	127.0	152.4	177.8	203.2	228.6
10	254.0	279.4	304.8	330.2	355.6	381.0	406.4	431.8	457.2	482.6
20	508.0	533.4	558.8	584.2	609.6	635.0	660.4	685.8	711.2	736.6
30	762.0	787.4	812.8	838.2	863.6	889.0	914.4	939.8	965.2	990.6
40	1016.0	1041.4	1066.8	1092.2	1117.6	1143.0	1168.4	1193.8	1219.2	1244.6
50	1270.0	1295.4	1320.8	1346.2	1371.6	1397.0	1422.4	1447.8	1473.2	1498.6
60	1524.0	1549.4	1574.8	1600.2	1625.6	1651.0	1676.4	1701.8	1727.2	1752.6
70	1778.0	1803.4	1828.8	1854.2	1879.6	1905.0	1930.4	1955.8	1981.2	2006.6
80	2032.0	2057.4	2082.8	2108.2	2133.6	2159.0	2184.4	2209.8	2235.2	2260.6
90	2286.0	2311.4	2336.8	2362.2	2387.6	2413.0	2438.4	2463.8	2489.2	2514.6
100	2540.0	...	...	...	...	...	...	...	...	...

Note: Values in this table are based upon the relation 1 in. = 25.4 mm. By manipulating the decimal point, any decimal value or multiple of an inch may be converted to its equivalent in millimetres, centimetres, or metres.

**TREATMENT WAITING ROOM
AND
MEDICAL EMERGENCY EXPANSION SPACE
MAJOR EQUIPMENT AND SERVICES**

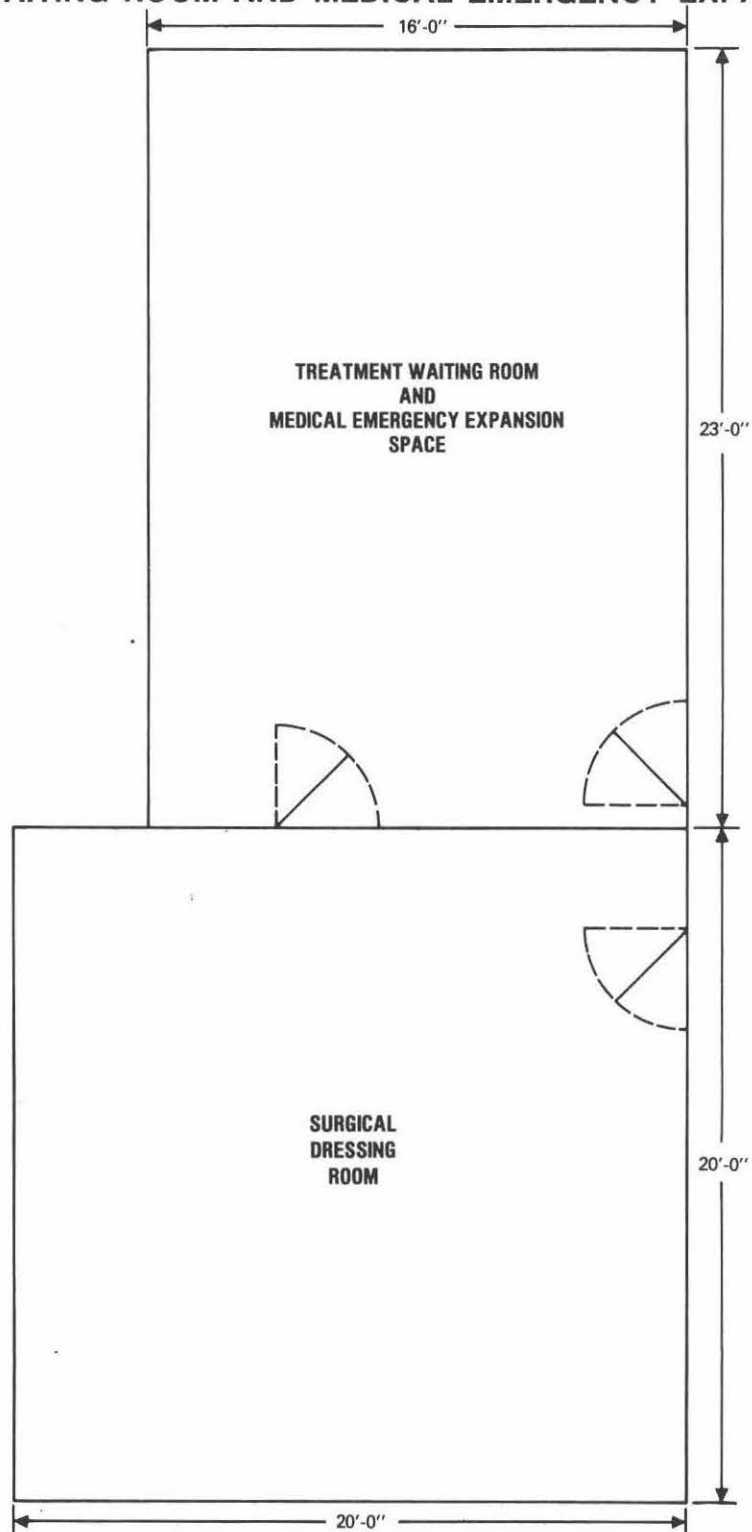
ITEM NO.	QTY.	EQUIPMENT	SPECIFICATION	SERVICES REQUIRED	
				A	B
1	30	CHAIR WITH TABLET ARM (CLASSROOM TYPE) (PORTABLE)	NAVSEA		
2	1	CLOCK, 6", BULKHEAD-MOUNTED	NAVSEA		
3	1	CLOSED CIRCUIT TV UNIT	NAVSEA	X	X
4	4	CONVENIENCE ELECTRICAL OUTLET (DOUBLE)	NAVSEA	X	
5	2	MAGAZINE RACK	NAVSEA		
6	1	SCREEN, ROLL-DOWN FOR SLIDES	NAVSEA		
7	1	SLIDE PROJECTOR, WITH REMOTE CONTROL (PORTABLE)	NAVSEA	X	
8	1	TABLE, FOR SLIDE PROJECTOR (MOBILE)	NAVSEA		

SERVICES

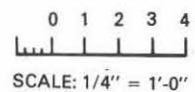
A — 110V 60 Hz
ELECTRICITY

B — CLOSED CIRCUIT
TV INPUT

TREATMENT WAITING ROOM AND MEDICAL EMERGENCY EXPANSION SPACE



ARRANGEMENT



April 1976

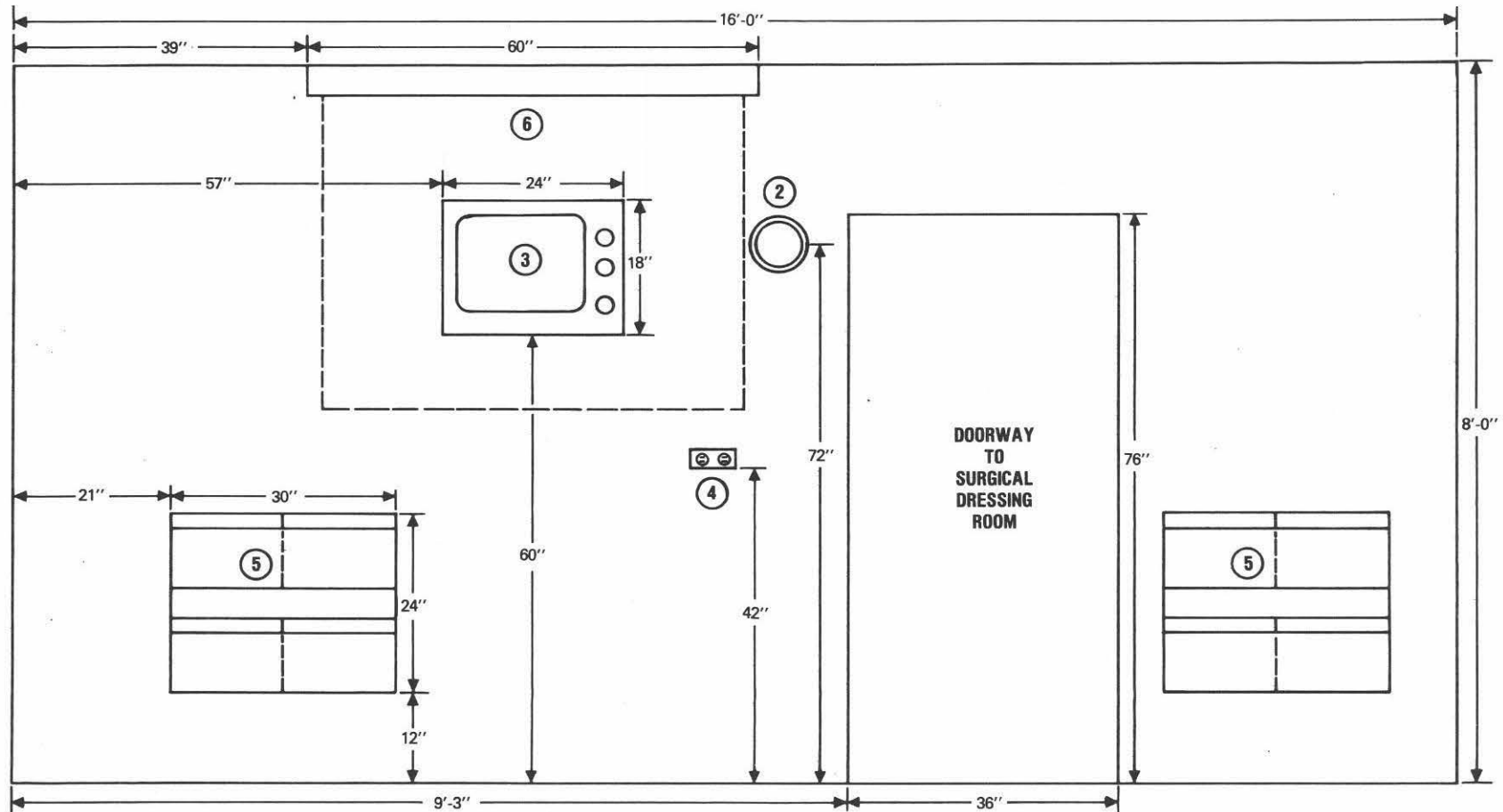
[illegible]

4.6

April 1976

4.7

TREATMENT WAITING ROOM AND MEDICAL EMERGENCY EXPANSION SPACE



ELEVATION A-A



SCALE: 3/4" = 1'-0"

4.8

ELEVATION B—B

